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ABSTRACT

An experiment was performed to assess if, and how, attention to a problem solving task varies with anxiety level. It was hypothesized that high anxious children would glance away from a task more often than less anxious children, in light of research literature which suggests that high anxious children are inattentive to tasks in order to avoid evaluation. Subjects were 48 fourth and fifth graders. The children were videotaped through a one-way mirror while they performed timed anagram tasks in the presence of a male experimenter working on a similar task. Results showed that less anxious children performed better at the anagram task than anxious children. High anxious children also were observed to engage in significantly more off-task behavior and more glancing away from their task than less anxious children. Research on family interaction patterns associated with high and low levels of anxiety and distractibility in fourth and fifth graders is discussed in view of the results of this study. It is suggested that parents of highly distractible and anxious children may be teaching their children to respond to problem-solving situations with task-inappropriate and dependent behavior, at the expense of task performance. (BRT)

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Test Anxiety and Off-Task Behavior in Evaluative Situations[1]

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Over the past fifteen to twenty years, research has established test anxiety as a fairly reliable predictor of children's performance in evaluative situations (Hill, 1972). While high anxiety can be facilitating on easy tasks, usually it interferes with performance on difficult tasks. High anxious children, as a rule, do not do as well as low anxious children on achievement and most other school-related activities.

How does evaluation anxiety impair children's performance? A theoretical basis for explaining the interfering effect of evaluation anxiety is provided by a model recently proposed by Hill (1972), which emphasizes the role of children's motivation to gain success and approval and to avoid failure and disapproval. Hill proposes that children low in anxiety generally have experienced frequent success and positive reactions from adults; as a result, low anxious children have developed fairly strong motives to approach success and approval and relatively weaker motives to avoid failure and disapproval. High anxious children, on the other hand, are thought to have met more frequently with failure and negative reactions from adults (Hermans, et al., 1972; Hill and Sarason, 1966; Sarason, et al., 1960). Such negative experiences are assumed to have strengthened both high anxious children's motives to obtain success and approval and their motives to avoid failure and disapproval, but especially the latter.

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In the research literature, the interfering effects of anxiety indeed are attributed in part to the tendency of high anxious children to engage in task-inappropriate and task-irrelevant behavior, in order to avoid failure and disapproval. For instance, high anxious children are said to be inattentive to the task, in order to avoid evaluation; to engage in attempts to interact socially with the evaluative agent, in order to gain approval on a basis other than performance (Hill, 1972); to engage in problem solving with extreme caution, in order to avoid making mistakes (Hill, 1972; Phillips, 1972; Ruebush, 1960); and to engage in perseverative, rigid, or stereotypic responding (Phillips, 1972). In addition, it has been suggested that worry about the adequacy of both their absolute and relative performance level may distract anxious children and prevent them from concentrating fully on the task at hand (Mandler, 1972; Mandler & Watson, 1966; Phillips, 1972; Wine, 1971). In effect, high anxious children are thought to attempt to cope at the same time with the task at hand and their worry about possible failure and disapproval. Low anxious children, in contrast, are thought to respond to evaluation pressure by devoting greater attention to fulfilling the demands of the task. Their concern while performing is less with adult reaction than it is with succeeding at what they are doing (Cox, 1968). Anxiety level, then, seems to influence what children attend to in problem solving situations--and what children attend to in large part determines how they perform. The authors of two extensive anxiety review papers came to this same conclusion and suggested that an attentional approach may be critical to our understanding of anxiety (I. G. Sarason, 1972; Wine, 1971).

The purpose of the present study was to examine if, and how, attention to--or rather, attention away from--a problem solving task varies with anxiety level. A fairly direct measure of attention which lent itself to investigating

observable behavioral differences was one used by Ruble and Nakamura (1972) in their study of task versus person orientation; namely, off-task glancing. Accordingly, the nature and extent of off-task glancing in a clearly evaluative situation was examined at three levels of anxiety.

In view of high anxious children's greater tendency to avoid performing in evaluative situations, it was hypothesized that they would glance away from their task at a higher rate than less anxious children; e.g., that high anxious children would glance around the room more often. Moreover, in view of their concern with evaluation, and their greater reliance on adults for evaluation of their performance (Cox, 1968; Hill, 1972), it was expected also that they would direct more glances at the experimenter than low anxious children.

METHOD

Forty-eight fourth- and fifth-grade children enrolled in two different middle-class neighborhood schools in Champaign-Urbana, Illinois, were videotaped through a one-way mirror while performing anagram tasks in the presence of a male experimenter working on a similar task.

The anagram task consisted of two boards with a set of ten letters each: one with the letters of the word "generation," the other with the letters of the word "inoperable." The first of these words was used with same-age children by Stevenson and Odom (1965), who found that children's performance on the task was negatively related to anxiety; and the second one was chosen for its potential equivalence in yield of commonly used words. The letters were capitals printed on one-inch masonite squares, and they were placed on ten gray one-inch squares across the top of a white anagram board, which also contained a gray area for forming words.

Each subject was tested individually in a mobile laboratory, seated at a table across from the experimenter. Following a demonstration with a third anagram set--of how to form a word by moving letters from the matrix to the work area, how to record the word on a notepad, and then to return the letters to their places prior to forming the next word--, the subject was instructed to form as many words as possible in five minutes with the first set of letters. The experimenter then turned away slightly to work with the second set of letters, placed on his left, giving the subject a three-quarter profile view of his face and a full view of his anagram board. The experimenter's line of vision was shifted, so that it would not coincide directly with that of the subject. After five minutes, the experimenter presented to the subject the second set of letters and a fresh notepad with the same instructions, and then again proceeded to work on another anagram board. At the beginning of each five-minute session, the experimenter started a stopwatch. In order to emphasize the evaluative nature of the task, the experimenter looked back at the stopwatch and subsequently glanced toward the subject's work area on the average of once a minute in both sessions. All subjects were given the two words in the same order. After completion of the second task, the experimenter looked over the word lists and commented favorably on the children's production, so that all subjects left the experimental situation with a positive assessment of their performance.

Five measures were taken: (1) the number of words formed, (2) glances directed at the experimenter's task, (3) glances directed at the experimenter, (4) other off-task or non-directed glances, and (5) questions or comments addressed to the experimenter.

A subject's glances directed at the experimenter's task, of course, might reflect task-related dependency rather than strictly off-task behavior. Since

all subjects were introduced to the task with a demonstration of several problem solving approaches, glances at the experimenter's task were likely to represent attempts to gain specific word cues, rather than cues on general procedure. However, no such information was to be gained. The experimenter was working with a different set of letters--and the subject was informed of that fact--and, further, the experimenter was purposely forming words that could not be formed with the subject's letters. In this context, repeated glancing at the experimenter's task constituted task-inappropriate dependent behavior.

RESULTS AND DISCUSSION

As expected, the less anxious children performed better at the anagram task than anxious children ($p < .01$). In addition, the results supported the hypothesis that high anxious children would engage in significantly more off-task behavior than less anxious children ($p < .05$). Anxious children glanced at the experimenter's task more frequently than less anxious children ($p < .05$), and they engaged in more non-directed off-task glancing ($p < .05$). There was also a tendency for anxious children to glance at the experimenter more than low anxious children, but the difference was not significant.

As expected, overall performance and glancing measures were related negatively, and the negative relation between performance and off-task behavior was further obtained in a minute-by-minute trend analysis of changes across the sessions. It is noteworthy that both the rate of word formation and the rate of off-task glancing were related to anxiety. Less anxious children showed less off-task glancing and did better at the task. While anxious children may have been glancing away from their tasks because they were performing poorly, it is equally plausible to assume that off-task glancing did not help their performance and that a high rate of glancing away, in fact, interfered with their performance.

The significant tendency of high anxious children to glance more at the experimenter's task than low anxious children showed little change across the five minutes of the tasks. Since no specific word information was to be gleaned, this tendency to continue glancing at the experimenter would suggest that anxious children were either unable or unwilling to abandon their external orientation; or, further, that they lacked the flexibility that would permit them to select and/or change to an appropriate strategy based on task-inherent feedback.

Although low and high anxious children did not differ significantly in the rate at which they glanced at the experimenter, verbalizations that accompanied glances suggest that they may have been doing so for different reasons. The verbalization data, taken from the videotapes, revealed that less anxious children--boys, in particular--were asking questions while glancing at the experimenter--questions that were exclusively task-related. In contrast, almost no questions were asked by anxious children. High anxious children simply looked up at the experimenter. Due to their general concern with possible negative evaluation from adults, high anxious children's glances, then, may have reflected their concern over evaluation of their performance.

The high anxious children's lower word production and significantly higher rate of off-task glancing--non-directed and directed at the experimenter's task--suggest that these children were not only trying to avoid the task, by glancing away from their task, but that they were also seeking clues toward its solution, by glancing at the experimenter's task, rather than trying to solve the problem on their own. Turnure and Zigler (1964) observed such off-task glancing, usually labeled distractibility, in both retarded and normal children. They proposed that it represents an outer-directed problem-solving strategy that is

adopted by children with a history of failure--the kind of history high anxious children are assumed to have--, who have learned to depend on external cues from their parents and other adults instead of relying on their own resources. Research on family interaction patterns associated with high and low levels of distractibility in fourth-grade children (Bee, 1964) and family interaction patterns associated with high and low levels of anxiety in fourth- and sixth-grade children (Hermans, et al., 1972), in fact, support the hypothesis that strong dependence on adults and an outer-directed problem solving strategy may be learned in the family in early childhood. Bee (1964) found that parents of highly distractible children tended to extend help so specific and directive that they practically took over for their children in problem-solving situations, while parents of non-distractible children were more apt to offer strategic information that permitted their children to proceed on their own. According to Hermans, et al. (1972), parents of high anxious children tended to ignore their children's expressions of insecurity, withholding both effective support and constructive help in problem-solving situations. Instead of helping their children to establish task-relevant responses, when they were having difficulties in solving problems, they tended to react with negative affect. Low anxious children's parents, on the other hand, tended to provide their children with both emotional support and problem-solving strategies when they showed signs of insecurity. Parents of highly distractible and high anxious children, then, may be teaching their children to respond to problem-solving situations with task-irrelevant or task-inappropriate and dependent behavior, at the expense of task performance. Parents of nondistractible and low anxious children may be teaching their children to become task-oriented and self-reliant in their problem solving.

The results of this study indicated that anxious and less anxious children indeed do differ in the way they attend to a task under evaluative conditions. Taken together with the parent-child interaction studies, these findings suggest that anxious children's performance can be improved by increasing their on-task orientation through task-inherent direction, e.g., programmed instruction and task-relevant feedback. A study by Dreyer and Rigler (1969), for instance, attests to the effectiveness of step-by-step mastery training like that offered by Montessori schools, which taught these children to be more task-oriented than children in ordinary nursery schools. Test anxiety research with adults, conducted by I. G. Sarason (1972), also suggests that modeling of problem solving with the verbalization of strategy facilitates subsequent performance of high anxious individuals. To help anxious children in the classroom, then, teachers could provide models for solving problems, especially when introducing new material; formulate rules to help children attend to the relevant parameters of the task; and, finally, teachers could encourage anxious children to evaluate their own performance at the task and to look for task-related feedback rather than to be overly reliant on external evaluation.

Anxious children's performance should be enhanced further through testing procedures that de-emphasize potential failure and disapproval, thereby reducing such children's avoidance responses in evaluative situations (Williams, 1975). In the present study, primarily descriptive in nature, all children were tested in an evaluative context. In order to determine further the role of success/approval and failure/disapproval motives, future research might be directed at examining the effects of evaluative aspects of the testing situation and task difficulty on anxious children's off-task behavior.

Footnote

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References

Bee, H. L. The relationship between parent-child interaction and distractability in fourth-grade children. Unpublished doctoral dissertation, Stanford University, 1964. Cited in E. E. Maccoby, Selective auditory attention in children. In L. P. Lipsitt and C. C. Spiker (Eds.), Advances in Child Development and Behavior, Vol. 3. New York: Academic Press, 1967.

Cox, F. N. Some relationships between test anxiety, presence or absence of male persons, and boys' performance on a repetitive motor task. Journal of Experimental Child Psychology, 1968, 6, 1-12.

Dreyer, A. S., & Rigler, D. Cognitive performance in Montessori and nursery school children. Journal of Educational Research, 1969, 62, 411-416.

Hermans, H. J. M., ter Laak, J. J. F., & Maes, P. C. J. M. Achievement motivation and fear of failure in family and school. Developmental Psychology, 1972, 6, 520-528.

Hill, K. T. Anxiety in the evaluative context. In W. W. Hartup (Ed.), Young Child, Vol. 2. Washington, D. C.: National Association of the Education of Young Children, 1972.

Hill, K. T., & Sarason, S. B. The relation of test anxiety and defensiveness to test and school performance over the elementary school years: A further longitudinal study. Monographs of the Society for Research in Child Development, 1966, 31, 1-76.

Mandler, G. Comments on Dr. Sarason's paper. In C. D. Spielberger (Ed.), Anxiety: Current Trends in Theory and Research, Vol. 2. New York: Academic Press, 1972.

Mandler, G., & Watson, D. L. Anxiety and the interruption of behavior. In C. D. Spielberger (Ed.), Anxiety and Behavior. New York: Academic Press, 1966.

Phillips, B. N., Martin, R. P., & Meyers, J. School-related interventions with anxious children. In C. D. Spielberger (Ed.), Anxiety: Current Trends in Theory and Research, Vol. 2. New York: Academic Press, 1972.

Ruble, D. N., & Nakamura, C. Y. Task orientation versus social orientation in young children and their attention to relevant social cues. Child Development, 1972, 43, 471-480.

Ruebush, B. K. Interfering and facilitating effects of test anxiety. Journal of Abnormal and Social Psychology, 1960, 60, 205-212.

Sarason, I. G. Experimental approaches to test anxiety: Attention and the uses of information. In C. D. Spielberger (Ed.), Anxiety: Current Trends in Theory and Research, Vol. 2. New York: Academic Press, 1972.

Sarason, S. B., Davidson, K. S., Lighthall, F. F., Waite, R. R., & Ruebush, B. K. Anxiety in Elementary School Children: A Report of Research. New York: Wiley, 1960.

Stevenson, H. W., & Odom, R. P. The relation of anxiety to children's performance on learning and problem-solving tasks. Child Development, 1965, 36, 1003-1012.

Turnure, J., & Zigler, E. Outer-directedness in the problem solving of normal and retarded children. Journal of Abnormal and Social Psychology, 1964, 69, 427-436.

Williams, J. P. Individual differences in achievement test performance as a function of optimizing task presentations and evaluation anxiety. Unpublished doctoral dissertation, University of Illinois, 1975.

Wine, J. Test anxiety and direction of attention. Psychological Bulletin, 1971, 76, 92-104.